UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

OCT 13 2011

Ms. Mary Lou Capichioni
Director
Remediation Services
Corporate Environmental Services
The Sherwin-Williams Company
101 Prospect Avenue, N.W.
Cleveland, OH 44115-1075

Re: Sherwin-Williams/Hilliards Creek Site – Former Manufacturing Plant
Gibbsboro, New Jersey
Administrative Order Index No. II CERCLA-02-99-2035
Evaluation of Soil, Sediment, Surface Water and Groundwater Results, and Proposal for Additional Site Characterization dated March 1, 2011 and *Work Plan for Additional Groundwater Characterization* June 1, 2011

Dear Ms. Capichioni:

The United States Environmental Protection Agency (EPA) and New Jersey Department of Environmental Protection (NJDEP) have reviewed the following documents: "Evaluation of Soil, Sediment, Surface Water and Groundwater Results, and Proposal for Additional Site Characterization" and "Work Plan for Additional Groundwater Characterization" dated March 1, and June 1, 2011 respectively and comments are attached (Attachments).

Soil Sampling Summary - The soil sampling activities appear to have identified isolated areas in which lead and arsenic are present above the Residential Direct Contact Soil Remediation Standards (RDCSRS). An exception to this is the floodplain which makes up the surrounding areas adjacent to Hilliards Creek (which has been previously sampled under this remedial investigation). EPA is in general agreement with the proposed sampling locations for lead and arsenic delineation. However, since the soil sampling activities identified mostly isolated areas of exceedances, EPA is requesting a "tighter" horizontal sampling approach (as opposed to 20 – 30 foot initial step-outs), which can then be followed by a larger step-out approach if exceedances are initially detected.

In addition to the soil sampling results generated by laboratory analysis, there were several instances in which X-Ray Florescence (XRF) results revealed exceedances (at times which were very high: T-54 had an average lead result of 11,677 ppm and T-60 had an average lead result of 8,529 ppm) during focused trenching activities (Figure 44 reported the average XRF results). EPA is requesting that additional soil sampling be performed in several of the identified target areas. Sherwin-Williams is currently proposing to collect additional samples in areas which were identified as having exceedances based on sampling performed during Brandywine Operating Partnership, L.P maintenance activities. EPA is in general agreement with this

proposal. There are several samples in an entire area of the former Main Plant Area in which the lead results were all qualified as rejected ("R"); additional sampling is requested in this area.

Groundwater Sampling Summary - Per the 2009 Work Plan the approved protocol for soil sampling included screening the recovered soil cores with a Photo-Ionizing Detector (PID). EPA reviewed the screening results and then compared them with the information recorded on the corresponding soil boring logs. EPA also evaluated the information generated during the following activities: focused trenching activities; recording the presence of product within several groundwater monitoring wells and historic Soil Vapor Extraction (SVE) system vents; and, the active collection of pure product from SVE vents and historic Well Point (WP) locations. These data were compared this to available historic data collected by the Sherwin-Williams Company. The historic data included: previously recorded soil boring logs; shallow-groundwater sampling results; well-point data results; and a free-product screening effort (which included, soil gas, PID and FID readings, and the use of other more rigorous screening technologies as the *Kolor Kut* and PetroFLAG™).

Evaluation of all of this data confirms that free-product contamination and product releases are still present and occurring. It also raises the question of whether standard soil sampling and analysis is the best approach to characterize the nature and extent of the free-phase product. Therefore, EPA is requesting that a shallow groundwater sampling/characterization effort be utilized to better characterize the horizontal and vertical extent of this free-phase product.

Although the groundwater sampling results were made available in the March 2011 report, a separate (June 2011) proposal was submitted for additional groundwater characterization. Comments on this report are discussed later.

Please submit a Work Plan for the additional remedial investigation sampling within 30 days of receipt of this comment memorandum. The Work Plan should meet EPA's requirements typically described and summarized in EPA's Quality Assurance Project Plans (QAPPs) and should include a detailed schedule for field activity implementation at the Former Manufacturing Plant (FMP) area. If you have any questions on this matter, you may contact Mr. Ray Klimcsak, at (212) 637-3916, or if you have any legal concerns, Mr. Carl Howard, Esq., at (212) 637-3216.

Sincerely yours,

Carole Petersen, Chief
New Jersey Remediation Branch

cc: Lynn Vogel, NJDEP
Ed Campbell III, Mayor Gibbsboro
Ned McFadden, Brandywine
Larry Spellman, Voorhees Town Administrator

Attachment 1

EPA's Review of the *Evaluation of Soil, Sediment, Surface Water and Groundwater Results, and Proposal for Additional Site Characterization* dated March 1, 2011 and *Work Plan for Additional Groundwater Characterization* dated June 1, 2011

Request for Shallow Groundwater Sampling Effort

EPA is requesting that a shallow groundwater sampling effort be employed. The sampling protocol should utilize a direct-push technology sampler, in which two (2) shallow groundwater "grab" samples are collected and sent to the laboratory for analysis. Ideally, one sample should be collected at the water table and another collected 10 feet below that. EPA is requesting that a fast-turn around analysis be performed on the samples and that EPA be sent copies of the preliminary data when available. Ultimately the data should undergo standard validation and be incorporated into the submittals. The aqueous samples should be analyzed for volatile organic compounds and semi-volatile organic compounds (SVOCs). EPA has selected locations for the shallow groundwater points and they will be discussed below in the areas which were used to define (study) boundaries in the March 2011 Sherwin-Williams/ Hilliards Creek Site – Former Manufacturing Plant (FMP) Report.

I. Former Resin Plant and Material Storage Area

Proposed Soil Sampling – Soil sample MPSB004 contained lead and arsenic, while the other soil samples in the vicinity did not. Review of the historic data indicates that sample TB-62 was collected in the immediate vicinity of MPSB004 and had a lead exceedance of 735 ppm at the 1.5 – 2.0 ft. interval (confirming the presence). EPA is not requesting that additional sampling in the vicinity of MPSB004 be performed. EPA concurs with the sampling proposed near MPSB0025; however, 20 ft. is too large of a step-out (as there appears to be no recourse if no exceedances are found from 20 ft.). Sampling should be performed at a 5 ft. step out. If an exceedance is noted at 5 ft (to the north and/or south), then a 10 ft. step-out should be employed, a 20 ft. step-out can then be employed if exceedances are still present at 10 ft. It should be noted that there were no historic samples collected in the vicinity of MPSB0025 to aid in data trend analysis.

Requested Soil Sampling – Within the vicinity of Target (T-23) there was an exceedance for lead (924 ppm – a high reading of 1,575 and a low of 320 were recorded) and arsenic (30 ppm), note, sample results are an average of the three XRF recordings. In order to delineate the extent of lead and arsenic exceedances in this vicinity, soil samples should be collected to the north and west at 5 foot step-outs. If still present at 5 ft, a 10ft, then 20 ft. step-out sampling effort should be employed. XRF sampling can be employed beginning at the 2.0 – 2.5 ft. interval and should continue in 2 ft. intervals, screening the bottom most six inches, unless there is visual discoloration or other indications of contamination present.

Requested Shallow Groundwater Sampling – Review of all of the data generated to date reveals that there is an area that has not been characterized. The area is bounded from MPSB004 on the west and to MPSB0001 on the east, then from MPSB003 to the north and to MPSB0012 to the south. Several historic groundwater screening samples had exceedances for BTEX (Benzene, Toluene, Ethylbenzene and Xylene): SGW-208 and SGW-282. Others in the areas were either of lower BTEX concentrations SGW-206; not sampled SGW-202 and SGW-284; or were below detection limits: SGW-200 and SGW-204. In this area, EPA is requesting that four points (2 samples – one at the water table and one 10 ft. beneath that) be advanced and that groundwater samples be analyzed for both VOCs and SVOCs. One specific location should include the location which depicts a possible buried Benzene tank/vault was located near historic building No. 24 on Figure "Factory Insurance Association."

Requested Trenching activities - Available historic site figures indicate the possibility of a buried railroad tanker car. The source of continued measurable product within Monitoring Well (MW-1) is uncertain (which is adjacent to historic building 66). While EPA is not currently requesting sampling under the slab of former Building 66 at this time, EPA is requesting trenching activities at the area of the possible buried railroad tanker car.

II. Former Tank Farm A

Proposed Soil Sampling – In lieu of collecting soil samples from the two locations proposed, EPA is requesting shallow groundwater sampling.

Requested Shallow Groundwater Sampling – EPA agrees that there is a need to conduct additional investigation activities at the locations identified in Section 4.2.1, page 4-4 of the March 2011 Report; however, rather than conducting soil sampling, EPA is requesting shallow groundwater sampling. EPA is requesting that the sampling be performed at the specified locations; however, two aqueous samples should be collected for analysis at both the water table and at 10 ft below this interval. In addition, EPA is requesting two additional groundwater sampling points within the footprint of Former Tank Farm A.

Additional Trenching Activities – EPA previously made a request for additional trenching activities (June 3, 2010) and agreed that it was permissible to wait until overall field work activities resumed. T-18 and T-19 – Additional information is being requested to verify that these two detected anomalies are indeed a "reinforced concrete or brick septic tank" and "probable septic leach field" (respectively). All available historic figures depict various structures and/or items (buried tanks, drum storage, etc.) that were associated with the paint manufacturing plant (mass-production related). If a 10' x 30' septic tank was installed, please provide additional information on its installation (which should be available in the town records or may have been retained by Brandywine Operating Partnership, L.P.).

Two trenches should be advanced within the area adjacent to 2 Foster Avenue – According to the figure (attached) there appears to have been a trench that collected spillage, overflow, etc., from Tank Farm A, that runs adjacent to 2 Foster Avenue. EPA is requesting that 2 trenches be placed in this area. The EPA RPM has previously identified these areas, for discussion purposes, EPA has depicted the approximate location of these two areas.

III. Main Plant Area

Soil Sampling Lead Results Qualified as "R" (Rejected): Figure 23 of the March 2011 Report incorrectly depicts MPSB0030 and MPSB0031 as being a "location with No Exceedances". This is somewhat misleading since all of the lead results for these sample results were rejected (the XRF results did indicate that there were no exceedances for lead or arsenic). At this time, EPA is not requesting that these locations be re-sampled. There is corresponding XRF data for these locations which did happen to be below the NJDEP RDCSRS

Proposed Soil Sampling Locations To Support Brandywine Silver Lake Conveyance System – Due to the fact that this area did have exceedances for lead and/or arsenic, this work is approved as proposed.

Proposed Soil Sampling Locations within the Area of 2 and 10 Foster Avenue – Due to the fact that this area did have exceedances for lead and/or arsenic, this work is approved as proposed.

Proposed Vertical Delineation of Soil Sample MPSB0033. Sampling is approved as proposed.

EPA Requested Soil Sampling within the Vicinity of Target 54 (T-54) – EPA is requesting that several soil samples be collected from within the vicinity of T-54 which had several high XRF lead results during trenching activities (average lead result of 11,677 ppm). Soil sampling intervals and analytical parameters utilized should be in compliance with other Phase 2 sampling protocols.

EPA Requested Soil Sampling within the Vicinity of Target 60 (T-60) - EPA is requesting that several soil samples be collected from within the vicinity of T-60 which had several high XRF lead results (average lead result of 8,529 ppm) during trenching activities. Soil sampling intervals and analytical parameters utilized should be in compliance with other Phase 2 sampling protocols.

Main Plant Area Requested Shallow Groundwater Sampling - Approximately 7 locations should be advanced within the former Main Plant area. Four can be placed within the area of 2 and 4 Foster Avenue. In addition, "Factory Insurance Association" figure shows a historic 22,000 gallon fuel oil tank. A sample should be advanced within this vicinity this, as well as (using the following figure: "Tank Schedule Historic") shows a railroad car lacquer filling station directly outside Historic Building No. 57. Approximately two samples should be placed in this vicinity.

IV. Former Tank Farm B

Proposed Soil Sample Locations - The two proposed soil sampling locations within the vicinity of samples MPSB0038 and 39 are acceptable as there were exceedances for lead and arsenic above the screening criteria.

Shallow Groundwater Sampling - Shallow groundwater sampling may be better suited to determine the presence and extent of pentachlorophenol. Pentachlorophenol was found in MW's 17 and 18 (DTW was roughly 5.32 and 8.88, respectively, in the Fall 2009). Approximately 3 sampling locations would be proposed to characterize this area.

V. Seep Area

General – "The Seep Area Report" (2007) cited that 228.72 tons of excavated soils was removed and classified as hazardous. Please cite on a figure approximately where and to what depth clean fill was placed. Additionally, the report cites that 66 tons of soil were removed and disposed of as non-hazardous wastes. Similar information is being requested for this volume of soil as well.

Shallow Groundwater Sampling – EPA is requesting that approximately seven locations be advanced to determine the extent of shallow groundwater contamination. One should be placed on the eastern side of 2 Foster Avenue, approximately (directly) across from MPSB0061. Another should be placed approximately in the middle of locations MPSB0084 and MPSB0086. The soil sample which was proposed near MPSB0047 can be converted into a groundwater sampling point. Approximately 2 should be placed within the Seep Area, which appears to not have been sampled before. The proposed soil sample that is to the south of MPSB0018 should be relocated to historic shallow groundwater sample (SGW) location SGW-12. The proposed soil sample location that is to the west of MPSB0018 should be converted into a shallow groundwater sampling location.

VI. Former Lagoon Area

Shallow Groundwater Sampling – Pentachlorophenol was the primary compound found in the vicinity of the former lagoon area during soil sampling activities. Historic groundwater sampling (mainly deeper aquifer) did reveal the presence of benzene (collected from HP-A, HP-B, HP-C, HP-D, and HP-G). As an alternative to additional soil sampling, EPA is requesting that aqueous samples be collected from the shallow groundwater. EPA is requesting that 4 shallow groundwater sampling locations be advanced.

Proposed Soil Sampling for Vertical Delineation - The two soil sampling locations which were not delineated vertically MPSB0067 and MPSB0068, are approved as proposed.

VII. Former Tavern/Gas Station and Eastern Off-Site Area

Shallow Groundwater Sampling – In total, five soil sampling locations were proposed for sampling. In lieu of soil sampling, EPA is requesting that all 5 proposed locations be advanced as shallow groundwater sampling locations.

Requested Clarification – Throughout the FMP Report there is discussion of the extent of "residual petroleum contamination"; however, in the section in which the former tavern/gas station is discussed, it is distinctly cited that naphthalene and residual petroleum contamination is

present and needs to be delineated. Naphthalene is present throughout many of the other areas (Resin Plant, Tank Farm A, etc.) along with other contaminants, but Naphthalene is not discussed separeately. The reason that it is here, should be explained.

VIII. Silver Lake Sediment Sampling

The March 2011 FMP Report does not include a proposal for additional Silver Lake sediment sampling; however, it should be noted that when the sediment results are compared to the NJDEP Ecological Screening Criteria, there were numerous sample locations at the "AA-AB" (0.0 – 0.5 ft.) depth interval that had exceedance values for lead. They included the following locations: SLDD000"#" – 1, 2, 3, 5, 6, 9, 10, 12, 13, 19, 21, and 24. In nearly all instances, no additional vertical delineation was performed. It should be noted that several samples even exceeded the NJDEP RDCSRS criteria (i.e., SLDD000"#" – 9, 11, 12 and 27). Finally, sample SLDD0005 was analyzed at the "AC-AD" interval (1.0 ft. to 1.5 ft.) and had a lead exceedance for 617 ppm. EPA is requesting that several of the sampling locations be vertically advanced and screened against the NJDEP Ecological Screening Criteria.

Proposed Surface Water Sample Collection

EPA approves the sampling as proposed.

IX. Geophysical Targets (Proposed Interim Remedial Measure)

At this time EPA is not requesting that the proposed actions be conducted. Instead EPA is requesting that all resources be focused on the proposed-and-requested sampling so that the Remedial Investigation sampling can be completed.

X. 68 West Clementon additional soil sampling

Review of the field notes on July 16, 2007 indicates that there was a visual observation and odor associated with residential soil sample (RSSB0080) at depth (1.5 – 2.0 ft). Per the approved residential sampling program at the time, the sampling did not specify for delineating vertically, nor did it include screening the samples with the XRF. EPA is requesting additional sampling at this property. The sampling at this property will be for Metals, VOCs and SVOCs. It is anticipated that sampling at depth will have to be employed.

Additional Groundwater Monitoring Work

EPA has requested a shallow groundwater sampling program, in which aqueous samples are to be collected from proposed locations at two distinct depths. EPA is requesting that these samples be analyzed for VOC, SVOCs, and Total Organic Carbon (TOC) and that preliminary data be provided to EPA on a rapid basis. In general, EPA agrees with the groundwater proposal by Sherwin-Williams, but is requesting that the shallow groundwater sampling program be performed first (prior to collecting any soil sampling discussed earlier, or installation of

additional wells). EPA and NJDEP will review the data and may make additional requests to the monitoring well locations.

Specific Comments on "Evaluation of Soil, Sediment, Surface Water and Groundwater Results, and Proposal for Additional Site Characterization", March 2011

1. Section 2.2.1 Sample Collection Locations, page 2-3 – At the end of the discussion for the 82 soil borings, it was indicated that for the samples collected in the Silver Lake Conveyance Bypass Project some borings were collected for laboratory analysis but in others only XRF analyses and PID screening were conducted. This was not consistent with what was performed. Only XRF analyses and PID screening were performed on the borings collected in this area (see Section 3.1.3). Please revise this statement to reflect what was performed.

2. Section 3.1.1 Former Resin Plant and Material Storage Area, page 3-4 – In the discussion for the horizontal delineation of benzo(a)pyrene in MPSB0004, it was indicated that XRF on the surrounding borings were not elevated and concluded that benzo(a)pyrene is not present. The XRF is typically not used for organics. Even with the PID screening that was performed, it was not clear if the PID was selective for benzo(a)pyrene. Please provide more explanation on the horizontal delineation for benzo(a)pryrene surrounding this boring.

3. Section 3.1.2 Former Tank Farm A, page 3-5 – Similar to the above, the first bullet at the bottom half of the page indicated the vertical delineation of PAH at a shallower interval and relating it to absence of elevated XRF results. It is not clear how the XRF results can be correlated to PAHs.

4. Section 3.1.13 Western Off-Property Area, page 3-17 – The reference to Figure 16 for the XRF analyses of MPSB0029 is in error. This information is found on Figure 15. Please revise.

5. Section 3.2.3 Surface Water Sample Results, page 3-22 – It was indicated that limited additional surface water sampling will be conducted to assess whether the PAH's detected results from particle entrainment. It is not clear what the data use for this additional determination of whether the PAHs are present in filtered water or not.

6. Section 4.0 Proposal for Additional Investigation, page 4-1 – For the additional work proposed in the Silver Lake conveyance area only XRF analyses for lead and arsenic are proposed. Please provide additional explanation as to why the soil sampling protocol established for this project is not being followed.

7. Figure 15 Arsenic and Lead XRF/Laboratory Result – The figure shows several lead laboratory results were rejected. The documentation did not provide any explanation for the rejection. Please include this information.

8. Section 3.2.1 Soil Sampling Results (Silver Lake), page 3-18: Surface soil data from the one soil boring adjacent to Silver Lake should be screened against Ecological Soil

Screening Levels.

9. Section 3.2.2 Sediment Samples, page 3-18: Please include a reference to the total number of sediment samples.

10. Section 3.2.2 Sediment Samples, page 3-19, category #2: There are two references to 4, 4, DDD. Please note whether this is a typographical error and correct as appropriate.

11. Section 3.2.2 Sediment Sampling, page 3-20, 2nd bullet: This is the first mention of cyanide exceedance. Please include cyanide in the overall summary discussion.

12. Section 3.3.2.2 Arsenic in Former Resin Plant, Tank Farm A, Gas Station and Seep areas, page 3-26: The Report concludes that arsenic is not anthropogenic based on the distribution of arsenic in soil and groundwater. However it is unclear how this determination was made. Please provide a more detailed explanation, including supporting data, to validate this conclusion.

13. Section 4.0 Proposal for Additional Investigation, page 4-1: A bullet referencing additional sampling requested at the Former Gas Station is missing (as per Section 4.7 Former Gas Station, page 4-12).

14. Section 4.4.1 – Soil Boring Locations, pages 4-7- 4-8: The reference to Figure 42 indicates three areas where additional borings are proposed, however the text lists only two areas. Please correct this discrepancy.

15. Section 4.6 – Former Lagoon Area, page 4-10: According to site figures, there is an extensive array of soil borings at this location. Please provide information regarding the need for additional borings for further characterization.

16. Section 4.6.2 Sample Screening, Collection and Analytical Protocol (Former Lagoon Area), page 4-10, point #1: Please clarify the methodology to be used in the event that samples collected at the maximum depth (5 ft) contain elevated levels of contaminants.

<u>Specific Groundwater Comments on "Work Plan for Additional Groundwater Characterization", June 2011.</u>

1. EPA is requesting that in addition the wells currently proposed downgradient of the benzene plume, that a nested well be placed (approximately southwest of MW-41), as this would be located along the axis of the plume.

2. Page 3, Section 2.1.1—The geology description refers to "Units" which are described as "Fine-grained". Please add more standard geologic terminology. For instance, is it fine-grained within the "sand" range, or fine-grained within the "silt" range? Please correct this terminology on Figure 4 as well. Also, please specify what the depth to bedrock is, if present.

3. Page 4, Section 2.1.2—This section discusses three hydrostratigraphic units, but it does not correlate these units to the geologic units in Section 2.1.1. For example, please clarify whether the "Composite Confining Bed" is part of geologic Unit 1, 2, 3, or 4? Somewhat complicating matters is the fact that the monitoring wells described in Section 2.2 are designated Shallow, Intermediate, and Deep. It is difficult to determine if the "Composite Confining Bed" is located in the Shallow, Intermediate, or Deep well completion depths? The text is not consistent in its use of terminology and naming systems. For example, one section will discuss "Unit 3" wells. Another will use the term "Intermediate." Please utilize one terminology system throughout the text. In addition, please insure that the proposed well depths are clearly identified within this consistent nomenclature.

4. Section 2.1.2 – In addition, please clarify the following points:
   - What is the depth of the Kirkwood-Cohansey aquifer?
   - Is the Vincentown aquifer Unit 4? It would be clearer if units are used along with the names.
   - What is the anticipated depth of the bottom of the Vincentown aquifer?
   - Does either of these aquifers supply potable water in the area?

5. Section 2.2 – Please clarify the following points:
   - Are the designations Shallow, Intermediate and Deep Groundwater related to the physical or hydraulic characteristics of the aquifer or just a relative depth?
   - Describe the rationale behind the designations of Shallow, Intermediate, and Deep.
   - Does coverage of different units extend to the average hydraulic testing which was performed?

6. Section 3.1.3 – EPA disagrees with the statement that benzene does not have to be further delineated to the west of MW-15 and MW-20. Benzene levels are 5 times the standard. In addition, please correct the last paragraph on Page 11, Section 3.1.1 to reflect that MW-13R is located in the north*eastern* portion of the Seep Area. Change *west* to *east* relative to U.S. Avenue in the second sentence.

7. Page 11, Section 3.1.4—Sherwin-Williams poses the question of "why are the arsenic concentrations in the groundwater so high?" One hypothesis presented is that the Eh/pH condition created by the extremely high concentrations of organic carbon is converting naturally-occurring arsenic to a more soluble form. EPA concurs that this is a plausible scenario, but to prove it, Sherwin-Williams must conduct arsenic speciation and compare the phase relationships. The more soluble forms of arsenic are actually more toxic, so this information is also useful to the human health risk assessors.

8. Section 3.1.5 – The presence of styrene is not mentioned or discussed here. Naphthalene and styrene are associated with resins and this area could be a possible source. EPA has requested a shallow groundwater sampling program to confirm this.

9. Page 15, Section 3.2— In the report, Sherwin-Williams provides their analyses for the source of the deep aquifer benzene plume, presenting a case for both an on-site source and an off-site source. All the lines of evidence are based upon the fact that there are lower benzene concentrations in the shallow horizons than in the deeper. For old spills (and this spill could date back to the 1800's), there are generally lower concentrations in the shallow, oxygen-rich horizons due to biodegradation. In order to confirm whether the FMP is the source, or if there is an off-site source, EPA is requesting that Sherwin-Williams analyze the groundwater samples for natural attenuation parameters as part of the investigation. This testing should be conducted vertically to compare the shallow groundwater indicators with the deep.

10. Page 26, Section 4.2.1.3—Based on the historical use map, the proposed upgradient wells seem to be co-located with former varnish drum storage, lab storage, misc storage, and drums of waste oil. Please move the proposed upgradient wells to hydrogeologically correct upgradient locations.

11. Section 4.3 - The work plan calls for slug tests to obtain "the average hydraulic conductivity in the four geologic units." Units three and four would have only two tests performed which is not an ideal average. Consider additional locations.

12. Figure 4—EPA is requesting that the color scale be revised so that it is more intuitive. The unit described as "tan-brown" is not colored tan on the figure. The color tan is used for the formation which is green, and the green color is used for the formation which is blue.

13. Figure 8 – It is stated that values in brackets [ ] should not be used; however, a value was provided which happened to be quite different from the other contour lines in the vicinity. Please provide the rationale for this presentation for the contour line in the vicinity of MW-11.

14. Figure 12—Please label the groundwater contours.

Attachment 2

NJDEP's Review of the *Evaluation of Soil, Sediment, Surface Water and Groundwater Results, and Proposal for Additional Site Characterization* dated March 1, 2011 and *Work Plan for Additional Groundwater Characterization* dated June 1, 2011

General Comments – for *March 2011 FMP Report and the June 2011 GWWP*

1. Though both documents reference additional work neither includes a schedule to complete the activities. Pursuant to the Department's TRSR N.J.A.C. 7:26E-4.2(b)1 a workplan shall include a detailed schedule for remedial activities, including time-frames and dates for the start and completion of all field activities; receipt of analytical results, and submission of a report. SW shall include a schedule in the revised sampling plans.

2. In addition, neither document includes a proposed sample summary table as required pursuant to TRSR N.J.A.C. 7:26E-4.2(b)6. SW shall revise both documents to include a proposed sample summary table for each media which shall include sample name, location, analytical parameters, proposed sample depth, sample intervals, reason for sampling, etc.

3. Comprehensive Analytical Data Tables: Analytical data for both documents are presented in cumbersome tables that are difficult to read in their present form. For example, Table 6 (March 2011 FMP Report) which presents a comprehensive table of soil data is 267 pages long. As a PDF file, Table 6 cannot be reviewed on a computer screen since it is difficult to keep track of the analyte across the row or the sample name down the column. In addition, since the VOC and SVOC TICs are included in the analyte list, there are numerous pages with little or no data, as the TICs were only detected in a handful of samples. The tables shall be revised such that the data for each sample media is separated into individual tables organized by analyte groups (i.e. VOC, SVOCs, metals, pesticides, PCBs, VOC TICs, SVOC TICs, etc.).

4. Seep Area and Product Plume: The Department finds that neither document references in text or figure the product plume in the area of Foster Ave. and US Ave. for which there is an operating extraction system. The document uses the term Seep Area only as an Area of Concern (AOC) name but does not provide any other detail. The Department acknowledges that these documents reference recent work. However, as an existing site condition, the product plume should have been clearly referenced in the text and depicted on any maps discussing groundwater contamination.

Specific Comments - *March 2011 FMP Report*

1. Section 2.3 Screening Criteria, Page 2-7: The document states "The screening critiera for soil are the NJDEP Residential Direct Contact Soil Remediation Standards (RDCSRS)..." As previously noted, soil samples collected in environmentally sensitive natural resources (ESNRs) shall be compared to the appropriate Ecological Screening Criteria (ESC) which are available at http://www.state.nj.us/dep/srp/guidance/ecoscreening. The Department reiterates that additional delineation to ecological screening criteria may be required for the Ecological Risk Assessment and/or for remedial actions in ecological exposure areas. Soil samples collected in the Northern

Bridgewood Lake Tract (Section 3.1.8), Southern Off-Property Area (Section 3.1.10) and Northern Off-Property Area (Section 3.1.12) and Silver Lake (Section 3.2) were only compared to the RDCSRS. Given that these areas are environmentally sensitive natural resources (ESNRs), the results shall be compared to the appropriate ESC.

In addition, as previously noted in August 12, 2009 correspondence to the USEPA concerning the February 2009 FMP workplan, "When determining whether a contaminant is of concern, delineated, or remediated in accordance with N.J.A.C. 7:26D, the NJDEP requires comparison with residential standards, non-residential standards, and with Impact to Ground Water (IGW) criteria. The NJDEP requires that all of these criteria be used when determining whether a constituent should be retained as an analyte in future soil investigations and when determining end points for vertical and horizontal delineation." As such, a comparison of soil to just the RDCSRS is not acceptable.

2. Section 3.1.1 to Section 3.1.13 Soil Sampling Results and associated Figures 7 to 10, 18 to 33: The Department has reviewed numerous figures, data tables and text and noted several inconsistencies in the presentation of data with "U" or "R" qualifiers. For instance, on Figures 9 and 18 several borings were designated with an "orange dot", signifying that though the data was qualified "U" the laboratory method detection limits (MDL) exceeded the RDCSRS. However further review of Figure 7 (Soil Sample Exceedances-All Parameters) and various AOC- specific maps (Figures 19 to 33) reveal that these designations were not carried through to other maps. In fact, in several cases these borings were later designated as "Soil Borings with No Exceedances" such that no additional sampling or evaluation was proposed (Figure 42). Due to the issues with Table 6, the Department was not able to complete a full review of this data. Regardless, unless additional justification is provided, the Department requires that additional sampling be conducted at locations where the data was qualified "U" though the MDLs exceeded the referenced RDCSRS, or data was qualified "R". The Department has identified several impacted borings with this issue, however, this is not an all inclusive list, such that further review of all the data is required.

- Borings MPSB0009 and MPSB0011 are classified as "Soil Boring Locations With No Exceedances" on Figure 21 (and Figure 7) in the Former Resin Plant and Material Storage Area. However Figure 9 denotes that these borings had MDLs for benzene above the RDCSRS.

- Boring MPSB0015 was classified as "Soil Boring Locations With No Exceedances" on Figure 22 (and Figure 7) in the Former Tank Farm A. However Figure 9 denotes that this boring had MDLs for benzene (and possibly other COCs) above the RDCSRS. In addition, though, borings MPSB0016 and MPSB0086 were referenced as "Soil Borings with Exceedances" on Figure 22, the "chem box" for these borings did not include benzene which was qualified with "U" though the MDLs were above the RDCSRS.

- Borings MPSB0026 and MPSB0051 were classified as "Soil Borings with Exceedances" on Figure 25 in the Seep Area. However, the "chem box" for these borings does not include benzene which was qualified with "U" though the MDLs were above the RDCSRS.

3. Section 3.1.1 Former Resin Plant and Material Storage Area, Page 3-3, Figure 8: The document states "The arsenic and lead...are horizontally delineated." The Department notes that lead was detected in MPSB0001 at 400 mg/kg at the RDCSRS. As such, additional delineation surrounding MPSB0001 for lead is required.

4. Section 3.1.1 Former Resin Plant and Material Storage Area, Page 3-4, Figures 7, 9 and 13: The document states "The benzene found in MPSB0010 was delineated in all directions at locations MPSB0009, MPSB0004, MPSB0012 and MPSB0001." The Department does not agree. Additional delineation for VOCs is required surrounding MPSB0009, 10 and 11 based on elevated PID readings and the detection limits issues for benzene and possibly other COCs as referenced above.

5. Section 3.1.3 Former Main Plant Area, Page 3-8, 6th paragraph: The document states that PCBs were detected in MPSB0019 east of the proposed bypass culvert at a concentration of less than 1 mg/kg. However, Figure 7 and the preceding text indicated PCBs were detected in boring MPSB0019 at a concentration of 23 mg/kg. The text shall be revised to reflect the correct boring (i.e. presumably MPSB0032.)

6. Section 3.2.2 Sediment Results, Page 3-20: The document states that cyanide was detected above the "typical range" at four locations in Silver Lake. However, the document only specifies 3 locations. The document should be revised to include the fourth location.

7. Section 3.2.2 Sediment Sampling Results, Page 3-21 and Section 4.0 Proposal for Additional Investigation, Page 4-2: The document states that in regards to Silver Lake "no additional investigation of sediment is recommended at this time." The Department notes that sample density presented in this document is not adequate for remedial action decisions. Additional sample collection may be required prior to completing a Remedial Action Workplan.

8. Section 3.3.1 Water Levels and Flow Direction, Page 3-24: The document states "Hilliards Creek and Bridgewood Lake are discharge points for groundwater.", however, no additional sampling is proposed. The Department recommends monitoring of Bridgewood Lake for VOCs along the northern boundary as a potential receptor of groundwater contamination.

9. Section 3.3.2.2 Arsenic in Former Resin Plant, Tank Farm A, Gas Station and Seep Area, Pages 3-26 to 3-27: The Department does not dispute the possible influence of Redox values on arsenic speciation and resultant groundwater concentrations. However, elevated concentrations of arsenic have been detected in other areas of the FMP in soils, groundwater and in the downgradient sediment and surface water. Arsenic is clearly a ubiquitous contaminant related to SW former operations. While there is no clear anthropogenic arsenic source areas identified in the soils in this area, in general the former plant operations cannot be ruled out as a source of the elevated arsenic concentrations in the groundwater. As such, further evaluation of arsenic in the groundwater is warranted at the FMP.

9. Section 3.3.3 Groundwater Sampling Results, Deep Groundwater, Page 3-30: The document states "The source of the benzene in the deep groundwater has not been identified." The document also references that the deep borings found no evidence of soil contamination at depth. Further review of the document indicates that the deep borings were drilled near the

former production wells and not near MW-30 where elevated benzene concentrations were detected in the groundwater. The document should be revised to clarify the location of the "clean" deep borings relative to the groundwater contamination. The Department finds that additional evaluation of the deep soils near MW-30 is warranted.

10. Section 4.0 Proposal for Additional Investigation and Figure 42: As noted, additional delineation of soils across the site is required where data was qualified "U" though the MDLs exceeded the RDCSRS or where the data was qualified "R"- rejected. The applicable text in Section 4.0 and Figure 42 shall be revised to reflect any additional sampling required based on further review of data with the above qualifiers.

11. Section 4.2.1, Former Tank Farm A-Soil Boring Locations, Page 4-4: To better define the extent of product downgradient of the Former Tank Farm A, the Department requires that an additional soil boring be installed near the eastern corner of 3 US Avenue (former Building 55), north of US Avenue, across from the Former Gas Station.

12. Section 4.3.2 Main Plant Area-Sample Screening, Collection and Analysis Protocol, Page 4-6: The document states "Samples will be...analyzed for PCBs, TAL Metals and TCL SVOCs." The Department does not agree that additional soil sampling in the Main Plant Area should be directed solely on the lead and arsenic XRF results as the document suggests. As such, soil samples collected in the Main Plant Area shall also be analyzed for TCL VOCs, and all soil cores screened with PID.

12. Section 5.0 Geophysical Anomaly Investigation, Pages 5-1 to 5-12: NJDEP is requesting that additional exploratory trenching at anomalies at T-32 and T-33 be performed. In addition, the "utility-like feature" (i.e., elongated polygon designated by a think pink line) *southeast* of former Building No. 56 along United States Avenue should also be evaluated. NJDEP requires that additional information be collected on this anomaly (i.e., depth to feature, versus depth to groundwater, etc.) as this feature has the potential to act as a conduit for contaminated groundwater. In addition, NJDEP is requesting that the "utility-like feature" on the *southwest* of former Building No. 56 along Foster Avenue should be evaluated as well, because of the potential to act as a conduit as well.

13. Section 5.2.2 Targets T-16 and T-17, Page 5-4: The pipe discovered in T-17 excavation shall be further uncovered and evaluated.

14. Figures 15, 16 and 17 and associated Figures 8 and 42: XRF results for arsenic and lead for several samples exceeded the RDCSRS whereas the associated laboratory analytical data did not (i.e. borings MPSB0013, MPSB0044, MPSB0049 and MPSB0050, etc.) SW shall clarify if additional evaluation of these borings will be conducted, as it was not apparent in the associated text.

15. Table 1: Please clarify the sample media for Page 15 in Table 1.

Specific Comments - *June 2011 GWWP*

1. Section 3.1.3 Benzene in Former Resin Plant, Tank Farm A, Gas Station and Seep Areas Page 11: The document states "No additional characterization to the west of MW-15 and MW-20 is proposed." The Department does not agree. Additional characterization is needed to define the western edge of the benzene in the shallow groundwater. In addition, the Department recommends the installation of a shallow well or piezometer between Former Bldg Nos. 57 and 82 and 10 Foster Avenue to further refine the groundwater contour maps on the west side of the FMP.

The document also states "The benzene is delineated to the east...by MW-1, MW-27 and MW-29." The Department disagrees. As noted previously, the Department believes additional delineation of the extent of product in the shallow groundwater downgradient of the Former Tank Farm A is required. As such the Department recommends an additional boring and potentially a shallow well be installed near the eastern corner of 3 US Avenue (Former Building No. 55) north of US Avenue, across from the former gasoline station and between wells MW-26 and MW-11.

2. Section 3.1.7 Chlorinated Degradation Products, Page 14: The document states "Neither of these constituents (PCE or TCE) were found in the soil or groundwater during this sampling event..." Please clarify if "these constituents" were found in the FMP in past events. If so, please provide the document name for which this information can be found.

3. Section 3.2 Deep Groundwater, Page 16: As part of their conceptual model proposal, SW shall also evaluate whether or not benzene in the deeper aquifer is the result of discrete vertical leakage through the confining layer.

4. Section 4.1 Supplemental Shallow/Intermediate Groundwater Investigation, Page 20: The document references that a second round of samples will be collected only from the newly installed wells and their associated well clusters. Please clarify in the text and table which wells will be sampled during the second round of sampling.

The document also references that existing wells will be sampled and analyzed for a reduced parameter suite such that TCL Pesticides/PCBs have been excluded from the proposed list of parameters. Please clarify how SW intends to confirm that low level concentrations of pesticides (i.e. beta-BHC, etc.) are the result of particle entrainment in the groundwater if the samples are not analyzed for those parameters.

5. Section 4.1.2 Collection of Filtered and Unfiltered Samples for PAH Evaluation, Page 22: The document references that as part of the PAH evaluation, MW-15, 16 and 19 will be sampled twice approximately 6 months apart. However, the document previously noted that only existing wells in a well cluster will be sampled during the second round. Please clarify if MW-15, MW-16 and MW-19 will be sampled during the second round of sampling.

6. Section 4.2.1.1 Deep Boring Installation, Page 25: Generally speaking, the Department approves of the proposal to evaluate benzene in the deep groundwater at the FMP. However the

Department does not agree that the proposed soil sample collection depth in the deep boring near MW-30 is adequate for this evaluation. The document states for the deep soil boring near MW-30, "Soil sample collection will begin at approximately 55 ft bgs where....geologic unit 2 will be encountered." However, the document also states that information from this boring would be used to select the screen interval for the intermediate well to be installed in "geologic unit 1" midway between the screen intervals of MW-19 and MW-30 (i.e. between 35 and 50 ft bgs.). Unless additional justification is provided, soil sample collection in the deep boring near MW-30 should begin at 20 ft bgs.